

NORWEGIAN

DESIGN & PRODUCTION COMPANY

CLOTHING & TEXTILE



BLÅBÆR
PRODUCTION

- Rolf-Erik Lund, Co-founder, Blåbær Production in Norway
- This is NOT a presentation of any «BEST PRACTICE» but an open and honest story of how we have worked, failed and succeeded during a periode of almost 10 years
- Our «How» and «Why» regarding PFAS, and some «Consequences»

How Blåbær Production phased out PFAS from Norway's largest kids wear brand



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Or did we...?

- Maybe we THINK we phased out...
- PFAS is a huge and complicated subject
- Language barriers and cultural differences
- Complex supply chains

- Blåbær Production is a Norwegian based design & production company within textile business established 2015
- Total 4 employees incl Designer, Product developer, Head of Sustainability and me as a managing director
- External clients. We perform tasks from earliest stages of drafts and ideas till final delivery, after sale and claims
 - Design and product development
 - Source suppliers
 - Visit factories
 - Follow up production
 - Documentation for all steps as far as possible
- 2024 is «done», 2025 & 2026 are main focus



- Kids wear brand Reflex, fully performed and executed by Blåbær Production

reflex®

- The brand Reflex is owned by Barnas Hus Norge
- Reflex is roughly 350 styles/year and net turnover approx 270mill NOK (2023)



How did our PFAS journey begin?

- In 2015, when we had just started up, **Norwegian Environmental Agency** contacted our client due to a 2014 product testing which included Reflex
- Even though we had wide experience from design & product development, our chemical knowledge was poor as this had not been a focus area
- Results from conducted tests?



- Reflex product failed due to content of hazard (and restricted) chemicals
- Revealed internal lack of
 - **Risk assessments**
 - **Internal procedures**
 - **Chemical understanding and knowledge**
- Motivation to avoid similar cases in future



Giftfunn i barneutstyr: Forbrukerrådet frykter mørketall

Published www.vg.no 13.12.2014


PFAS journey (2015-2016)

- "Contract of environmental concern" distributed to suppliers
- Focus on PFOA & PFOS (which was already restricted / included in POP`s)
- Made some vague internal commitments and started communicating this new topic to our suppliers
- Became member of Swedish Chemical Group RISE



Til Rolf Erik Lund man. 16.03.2015 09:20

Du svarte på meldingen 07.04.2015 15:23.

 img809.pdf
139 KB

HI, ROLF
OUR SIGNED GUIDANCE
RE: VIRKES GUIDANCE.

DO YOU HAVE CHINESE VERSION?
I MADE THE TRANSLATION, BUT I DID NOT MAJOR IN CHEMISTRY, I AM AFRAID THAT THERE WILL BE WRONG TRANSLATION AS FAR AS I KNOW,

THE PFOA AND PFOS ARE BE ADDED WHEN W/R MAKING OF FABRICS, THE FABRIC WITHOUT PFOA AND PFOS WILL BE ABT 20CENTS MORE/METER. AND UP TILL NOW ONLY A FEW SPECIAL EU BUYERS REQUESTED PFOA& PFOS FREE. AND OUR QUOTATIONS OF SAM JOHN AND PHIL WERE NOT PFOA & PFOS FREE.

I HAVE SENT THE VIRKES TO OUR FABRIC SUPPLIER, **IF NO FURTHER FEES ADDED**, WE CAN KEEP OUR PRICES AND TO PRODUCE FABRICS PFOA PFOS FREE.

BEST REGARDS



PFAS journey (2015-2016)

- X-list, tool from Chemical Group RISE
- Chemical Guidance, tool from Chemical Group RISE

Product / Product group		rev. May 2015 (pl/2)
Jackets and coveralls, February 2016		
Material/design/functionality/process/targeted chemicals	limit value	Legal requirement (mg/kg ¹) <i>The listed substance is restricted in REACH annex XVII if nothing else is written.</i>
<input checked="" type="checkbox"/> Dyed cellulosic fibers such as cotton, hamp, flux, viscose etc.		
<input checked="" type="checkbox"/> Banned arylamines derived from azo dyes	30	(st)
<input checked="" type="checkbox"/> Carcinogenic dyestuffs and pigments		
<input checked="" type="checkbox"/> Dyed polyester, acetate, triacetate and chlorofibres (e.g. PVC)		
<input checked="" type="checkbox"/> Banned arylamines derived from azo dyes	30	(st)
<input checked="" type="checkbox"/> Carcinogenic dyestuffs and pigments ¹		(e)
<input checked="" type="checkbox"/> Allergenic disperse dyes and Navy Blue		
<input type="checkbox"/> Dyed leather ² , wool, silk and polyamide.		
<input type="checkbox"/> Banned arylamines derived from azo dyes	30	(st)
<input type="checkbox"/> Carcinogenic dyestuffs and pigments		(e)
<input type="checkbox"/> Allergenic disperse dyes		
<input type="checkbox"/> Chromium VI (Cr ⁶⁺)	0,3	(st)
<input type="checkbox"/> Short chain chloro paraffins (SCCP)		(3)
<input checked="" type="checkbox"/> Metal parts/accessories (incl. enamel coated)		
<input checked="" type="checkbox"/> Nickel		4
<input checked="" type="checkbox"/> Lead / lead salts		100
<input type="checkbox"/> Cadmium salts	10	100
<input checked="" type="checkbox"/> PVC-, PU-, rubber- parts/accessories and plastisol prints		
<input checked="" type="checkbox"/> Phthalate esters		100
<input checked="" type="checkbox"/> Short chain chloro paraffins		(st)
<input checked="" type="checkbox"/> Lead salts		100
<input checked="" type="checkbox"/> Cadmium salts	10	100
<input checked="" type="checkbox"/> Dialkyltin (DOT, DBT)	0,0	100
<input checked="" type="checkbox"/> Finish treated textile and leather		
<input checked="" type="checkbox"/> Oil/dirt/water repellence, breathability, chemical shrink, wrinkle or antistatic treatment		
<input checked="" type="checkbox"/> Formaldehyde	2	nit
<input checked="" type="checkbox"/> PFOA, its related substances and higher homologues.		0,5
<input checked="" type="checkbox"/> PFOS and related substances		10 ²

全氟辛酸 (PFOA) 和相关物质



限值：

产品中不应含有。

CAS RN：

335-67-1

特性：

全氟化合物和聚碳氟化合物为表面活性剂，是稳定、耐热、防水防油的物质。PFOA 是潜在的致癌物。

用途：

清洁剂、灭火剂、金属电镀剂和皮革和纺织品浸润剂的添加剂的降解产物。PFOA 在含氟聚合物（例如聚四氟乙烯 (PTFE) 等）生产过程中用作乳化剂。

备注：

不基于长链氟调聚物 (> C7) 或长链全氟磺酸化合物 (> C5) 的替代技术。

法规背景：

欧洲议会和理事会法规第 1907/2006 号条例 (REACH) 中公告了高度关注物质的候选列表，其中包括全氟十三酸 (PFTriDA) 72629-94-8、全氟十二酸 (PFDoA) 307-55-1、全氟十一烷酸 (PFUnA) 2058-94-8、全氟十四酸 (PFTA) 376-06-7、全氟辛酸 (PFOA) 335-67-1 和十五代氟辛酸铵盐 (APFO) 3825-26-1，这些物质必须经过批准才可使用。

从 2014 年 6 月 1 日起，挪威开始对这些物质进行限制，提出如下法规限值：在化学品中为 0.001 %，制品和其部件中为 0.1 % (1000 ppm) 以及消费品中为 1 µg/m²。

测试方法：

没有现成的标准化测试方法。

测试仪器：LC-MS

检测限：0.005 mg/kg.



PFAS journey (2015-2016)

- Slight increase of internal knowledge, e.g. Which chemicals for which products?
- Face to face discussions with our suppliers
- Included requirements regarding "Contract of environmental concern" in terms
- Mixed reactions from our suppliers to our new focus area, requirements and demands
 - Needed to reduce numbers of suppliers
- Our self esteem in this period?

PFAS journey (2015-2016)



The more you know, the more
you know you don't know.

~ Aristotle

AZ QUOTES



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PFAS journey (2017-2018)

- Started working more targeted to increase knowledge
- Improved tech-pack details regarding chemicals, e.g. Oeko-Tex certification, Referring to X-list and Chemical Guidance etc
- Started visiting 2nd and 3rd tier suppliers
- New and updated Chemical contract sent out to all suppliers
- **During 2017 we required all suppliers to phase out C6 in our products**
- Increased focus and policy regarding Unauthorized subcontracting
- Systematic random testing of specific chemicals
- **C6 phased out in all main products during 2018**



PFAS journey (2019-2022)

- “New start” for Blåbær
 - Clear idea of which player we wanted to be in the garment and textile business. Our vision is “To be a greener partner through innovative and solution oriented design, production and logistics”.
 - Internal policies
 - Internal commitments
- Our motivation for the change
 - We want to be one of the “good guys”. Not only in business but also in an environmental and sustainable perspective
- Be proactive and don`t stay in the past





Be proactive and don't stay in the past



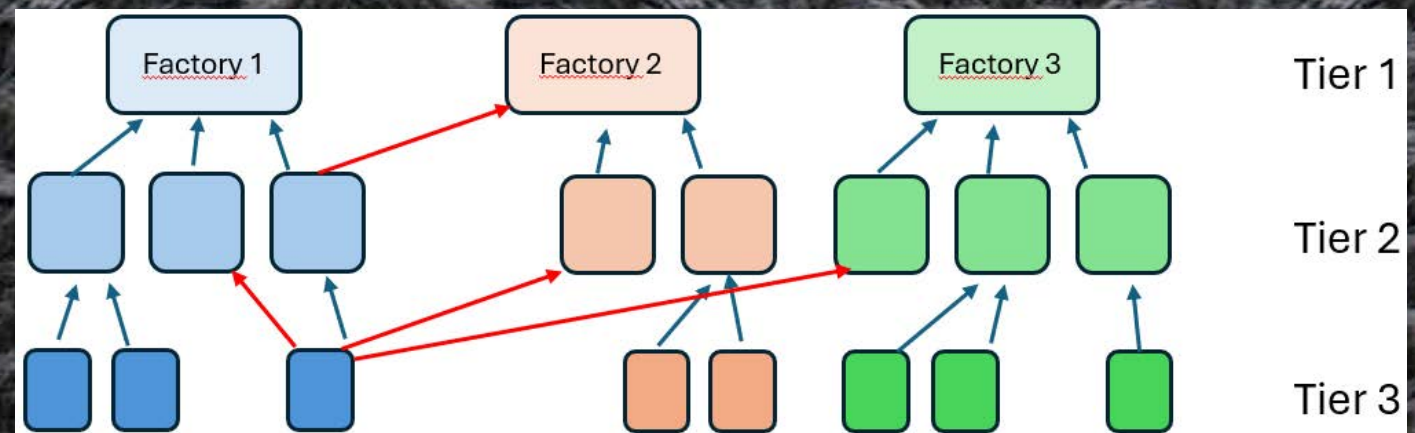
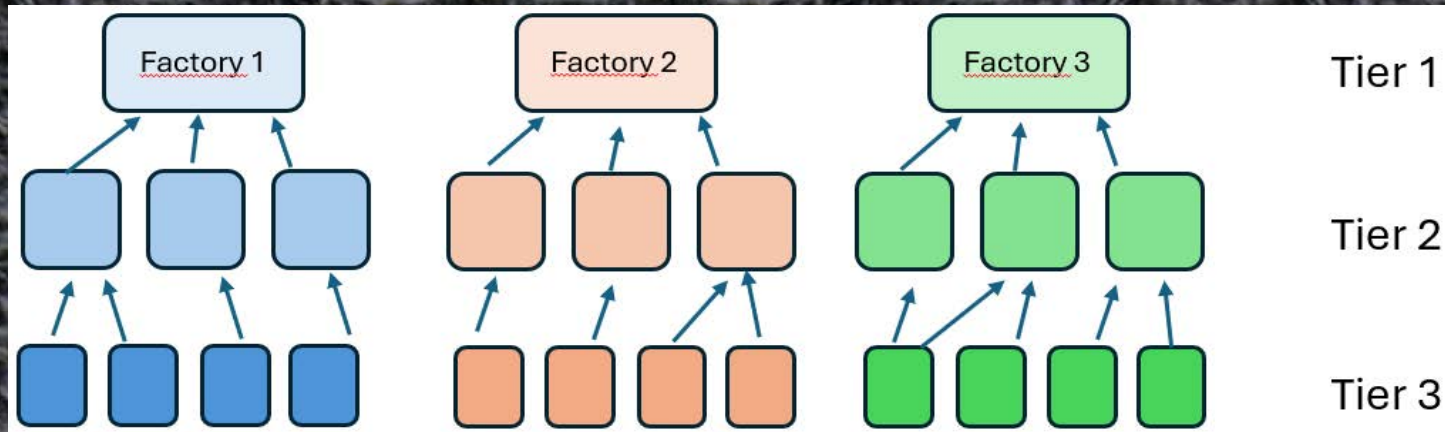
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PFAS journey (2019-2022)

- Ethical Trade Norway - **new annual reporting requirements** (inline with UN Guiding Principles / OECD model Due diligence for responsible business conduct)
- **Risk assessment done continuously** in order to map and identify risks
- **"Chemical use" identified among main salient risks**: Occupational Health and safety, Environment, Emission, Waste, Use of materials
- Systematic testing in accordance with risk analysis
- Nominating 2nd and 3rd tier suppliers to be used for several factories and products



PFAS journey (2019-2022)



PFAS journey (2019-2022)

- Established minimum criteria for our suppliers
- **Norwegian Transparency Act** relating to transparency and work on human rights and decent working conditions. Sanctioned by Stortinget June 2021 and set into force July 2022.
- As we expected this legislation to be implemented in some way, **we had already informed and prepared our suppliers of coming requirements since mid 2019.**
- **Blåbær Production and Reflex joined “NO TO PFAS” movement** - as we want to increase awareness and hope to make an impact for a total ban.
- Stricter chemical limits in general
- No acceptance of any PFAS or perfluorinated compounds



PFAS today

- Internal commitments are essential
- Our work with PFAS and chemicals in general, are related to our work with due diligence and risk assessment
- Clear requirements to our supply chain that all use of any PFAS is strictly prohibited



Chemicals mentioned x2

Guidelines for Suppliers – BLÅBÆR Production AS

供应商准则 – BLÅBÆR Production AS

Passed by board of BLÅBÆR Production AS. Last modified 28.03.22.

由 BLÅBÆR Production AS 董事会通过。最后修改日期：2022 年 3 月 28 日

BLÅBÆR Production AS strives towards responsible business conduct that respects people, society and the environment. These guidelines for suppliers have been developed as a complement to our Policy for Responsible Business Conduct. To achieve responsible business conduct we wish to work in close partnership with our suppliers and business partners. BLÅBÆR Production AS considers collaboration to be a prerequisite for responsible business conduct, and key to the achievement of the UN Sustainable Development Goals.

BLÅBÆR Production AS 致力于负责任的商业行为，尊重人、社会和环境。此准则是对我们所制定的《负责任商业行为政策》的补充。为了实现负责任的商业行为，我们希望与供应商和业务合作伙伴密切合作。BLÅBÆR Production AS 坚持认为合作是负责任商业行为的先决条件，也是实现联合国可持续发展目标的关键。

Requirements – own business – BLÅBÆR PRODUCTION AS

需求 – 自有业务 – BLÅBÆR PRODUCTION AS

Our policy for responsible business conduct (<https://blaber.no/wp-content/uploads/2022/02/Policy-Blå%CC%8Abaer-production-07.02.22.pdf>) forms the basis for our sustainability work, including in our supply chain. We seek to improve our policy and practice where relevant. You can find more information on our sustainability work here (<https://blaber.no/eng/social-responsibility>)

我们的《负责任商业行为政策》 (<https://blaber.no/wp-content/uploads/2022/02/Policy-Blå%CC%8Abaer-production-07.02.22.pdf>) 构成了我们可持续发展工作的基础，同时也适用于我们的供应链。我们在适当的情况下积极改善我们的政策和实践。您可以在此处找到有关我们可



Chemicals mentioned x2

Policy for responsible business conduct – BLÅBÆR Production AS

Passed by board of BLÅBÆR Production AS. Last modified 04.05.2021.

Introduction

BLÅBÆR Production strives towards responsible business conduct that respects people, society and the environment. This policy document, including our Code of Conduct, forms the foundation of our sustainability work.

BLÅBÆR Production considers responsible business conduct to be a prerequisite for sustainable development, meaning that today's generation get their needs covered without compromising the ability of future generations to meet their own needs¹. The UN Sustainable Development Goals (SDGs) is the world's joint action plan for sustainable development. BLÅBÆR Production works actively with the Sustainable Development Goals.

As a member of Ethical Trade Norway BLÅBÆR Production commits to working actively with due diligence for responsible business conduct². Due diligence is a risk-based approach to respect and safeguard people, society and the environment in our own business and throughout the supply chain. We expect our suppliers and partners to follow the same approach.

Requirements - own business

BLÅBÆR Production acknowledges that our business conduct can potentially have negative impact on people, society and the environment. At the same time, we see the potential to contribute to positive development in the supply chain. With this in mind, we have compiled the following principles and criteria guiding our own business:

Due diligence

BLÅBÆR Production shall conduct due diligence for responsible business conduct. This involves; conducting risk assessments to identify potential negative impact on people, society and the

Chemicals mentioned more than 50 times



Purchase spend covered by risk analysis: **91 %**

A-Product	B-Share	C-Supply chain	Production process	Country
Product or product group	Share of purchase value	Country of last supplier	Main component Raw material/input	Country
Enter a product or a product category. <small>INFO</small>	Enter percentage of total purchase spend	Enter the country where your supplier of this product is located. This may or may not be a producer.	Enter the production processes, key components, raw materials and transport (if included). Add more if relevant. <small>INFO</small>	Enter the country of production process / main component / raw material / transport.

D-Country Risks (scale 1-5)

Forced labour	CBA and FoA	Child labour	Discrimination	Wages	Corruption	Total Country risk
Calculated	Calculated	Calculated	Calculated	Calculated	Calculated	Calculated
<small>INFO</small>	<small>INFO</small>	<small>INFO</small>	<small>INFO</small>	<small>INFO</small>	<small>INFO</small>	<small>INFO</small>

E-Known risks

Known high risk	Describe
Enter Yes/ No	Describe known high risk related to the product, production process, raw material etc.
<small>INFO</small>	

Product	Share	Country	Production process	Country
Wool base layer garments		China		
Wool base layer garments		China		
Wool base layer garments		China		
Wool base layer garments		China		
Wool base layer garments		China		
Wool base layer garments		China		

3	5	2	2	No data	3	3,0
3	5	2	2	No data	3	3,0
3	5	2	2	No data	3	3,0
3	5	2	2	No data	3	3,0
1	3	1	2	No data	2	1,8
1	3	1	2	No data	2	1,8

Yes	Labour rights, workers safety
Yes	Energy & water intensity, labour rights, chemical use
Yes	Energy & water intensity, labour rights, chemical use
Yes	Corruption
No	
No	

Technical outerwear		China		
Technical outerwear		China		
Technical outerwear		China		
Technical outerwear		China		
Technical outerwear		China		
Technical outerwear		China		

3	5	2	2	No data	3	3,0
3	5	2	2	No data	3	3,0
3	5	2	2	No data	3	3,0
3	5	2	2	No data	3	3,0
3	5	2	2	No data	3	3,0
3	5	2	2	No data	3	3,0

Yes	Labour rights, workers safety
Yes	Energy intensity, labour rights, chemical use
Yes	Energy & water intensity, labour rights, chemical use
Yes	Energy & water intensity, labour rights, chemical use
Yes	Water intensity, energy intensity, labour rights
Yes	Corruption, child labour, forced labour

Cotton garment		India		
Cotton garment		India		
Cotton garment		India		
Cotton garment		India		
Cotton garment		India		
Cotton garment		India		

3	5	3	4	No data	3	3,6
3	5	3	4	No data	3	3,6
3	5	3	4	No data	3	3,6
3	5	3	4	No data	3	3,6
3	5	3	4	No data	3	3,6
3	5	3	4	No data	3	3,6










Yes	Discrimination, labour rights, workers safety
Yes	Chemicals, energy intensity, discrimination, labour rights
Yes	Chemicals, energy intensity, discrimination, labour rights
Yes	Chemicals, water & energy intensity, discrimination, labour rights
Yes	Corruption
Yes	Forced labour & child labour, water intensity, chemical use, discrimination

PU Rainwear		China		
PU Rainwear		China		
PU Rainwear		China		
PU Rainwear		China		
PU Rainwear		China		

3	5	2	2	No data	3	3,0
3	5	2	2	No data	3	3,0
3	5	2	2	No data	3	3,0
3	5	2	2	No data	3	3,0
3	5	2	2	No data	3	3,0

Yes	Labour rights, workers safety
Yes	Energy intensity, labour rights, chemicals
Yes	Energy intensity, labour rights
Yes	Water intensity, energy intensity, labour rights
Yes	Energy intensity, labour rights

Groups of PFAS substances

Compound name	Acronym	CAS Number	Structures	Regulation
PFAS - Highly fluorinated carboxylic acids (PFOA and related substances)				
Perfluorobutanoic acid	PFBA (C4)	375-22-4		no
Perfluoropentanoic acid	PFPA (C5)	2706-90-3		no
Perfluorohexanoic acid	PFHxA (C6)	375-85-9		SVHC REACH Annex XVII*
Perfluoroheptanoic acid	PFOA (C8)	335-87-1		SVHC REACH Annex XVII Stockholm Convention
Perfluorooctanoic acid ammonium	APFO (C8)	335-95-5 3825-26-1		SVHC REACH Annex XVII Stockholm Convention
Perfluorononanoic acid	PFNA (C9)	375-95-1		SVHC REACH Annex XVII
Perfluorodecanoic acid sodium and ammonium salts	PFN-Na/PFN-A (C9)	21049-99-8 4149-90-4		SVHC REACH Annex XVII
Perfluorodecanoic acid	PFDA (C10)	335-76-3		SVHC REACH Annex XVII
Perfluorodecanoic acid and its sodium and ammonium salts	APFD (C10)	3830-45-3 3109-42-7		SVHC REACH Annex XVII

Production impurities and/or degradation products

 **Small PFAS molecules**



Why are PFAS harmful?

腾讯会议

- Persistent - extremely stable and resist the natural processes of degradation, PFAS are called "forever chemicals"
- Accumulate in living organisms via the food chain
- Accumulate, e.g., in leather during the tanning process in case the process water used is contaminated
- Health damages associated with PFAS
 - Carcinogenic
 - reproduction toxic
 - increased cholesterol and risk of obesity
 - hormonal interferences
 - reduced immune response

PFAS如何影响你

正在讲话: RyanKuang

研究表明, PFAS会对雨水、饮用水和地下水造成污染

PFAS可以在大多数人的血液检测到, 并导致人体胆固醇水平升高

PFAS可能会造成人体肝脏损伤

PFAS可能导致肾癌和睾丸癌的发生



激活 Windows

转到设置以激活 Windows。 24-07-30 11



PFAS Test Training

TÜV SÜD

Ryan Kuang, PS: Softlines CoE Teams

Add value. Inspire trust.

概览

- 01 什么是PFAS? PFAS的行业应用及风险
What are PFAS? Industry applications and risks of PFAS
- 02 PFAS的法规要求和禁用趋势
Regulatory requirements and prohibited trends of PFAS
- 03 欧盟PFAS测试标准更新
EU PFAS test standard updated
- 04 企业如何应对PFAS的全球管控
How could companies respond to PFAS



Background of PFAS Restriction



Film Dark Waters and PFOA

- 该影片基于Nathaniel Rich在《纽约时报》上发表的文章《The Lawyer Who Became DuPont's Worst Nightmare》，围绕罗伯特·比洛特展开，他担任辩护律师长达8年之久。他对化工巨头杜邦公司提起了环境诉讼。这场官司揭露了几十年来杜邦公司化学污染的历史。
- Based on Nathaniel Rich's article in The New York Times, "The Lawyer Who Became DuPont's Worst Nightmare," the film centers on Robert Bilott, who worked as a defense attorney for eight years. He filed an environmental lawsuit against the chemical giant DuPont that exposed the company's decades-long history of chemical pollution.
- 2023年6月4日, 科慕 (Chemours)、杜邦 (DuPont) 和科迪华 (Corteva) 这三家公司周五宣布, 他们已同意支付超过10亿美元, 以解决“永久化学品”污染美国公共供水系统的指控。这三家化工巨头正面临来自全国各地的数千起诉讼, 指控有毒化学品被用于制造, 然后污染了环境。
- On June 4, 2023, three companies - Chemours, DuPont and Corteva - announced Friday that they have agreed to pay more than \$1 billion to settle allegations that "permanent chemicals" contaminated U.S. public water supplies.

Fujian Leadline PFAS Training

2024-06-20

What are PFAS? - Per- and polyfluoroalkyl substances

• 全氟烷基和多氟烷基物质 (PFAS) 是一种合成化学品, 定义为“含有至少一个完全氟化的甲基或亚甲基碳原子 (无任何氢/氯/溴/碘原子附于其上) 的氟化物物质, 即除了少数明显的例外情况, 任何含有至少一个全氟甲基-

RyanKuang的屏幕共享

PFAS Training

预定会议

共享屏幕

15:00

Style name	Hitra coverall	Season	SS25	Color	4	Brand	REFLEX
Style number	AF104	Size range	80-128	Designer	Elin		
FABRICS AND COLOR DETAILS							

SPECIFICATIONS					
	Position	Construction	Quality	Print	Standard
MAIN FABRIC 1	All over the body except knee				No PFAS, OEKOTEX 100 class 1, GRS
MAIN FABRIC 2	At knee patch and CB pant part				No PFAS, OEKOTEX 100 class 1, GRS
LINING 1	Lining for polyester oxford				OEKOTEX 100 class 1, GRS
LINING 2	At pocket inside				OEKOTEX 100 class 1, GRS
BINDING	Inside placket				OEKOTEX 100 class 1, GRS
BACKING	Backside of MAIN FABRIC 1				OEKOTEX 100 class 1, GRS



Style name	Hitra coverall	Season	SS25	Color	4	Brand	REFLEX
Style number	AF104	Size range	80-128	Designer	Elin		



TECHNICAL REQUIREMENTS AND RISK ASSESSMENTS

Fabric performance	Min or Max										Chemical test
MAIN FABRIC 1	Min										TBC
MAIN FABRIC 2	Min										TBC
MAIN FABRIC 3	Min										
LINING 1	Min										TBC
LINING 2	Min										TBC
BINDING	Min										TBC
BACKING	Min										
FINAL GARMENT	Min										TBC
Testing Standard											As X-list / chemical guidance
Test requirement								Test of final garment	Test of final garment		TBC

N.B !!!

- 1 PFAS\PERFLUORINATED COMPOUNDS TOTALLY BANNED
- PFAS\PERFLUORINATED COMPOUNDS NOT ALLOWED.

Further tests may occur in consultation with the manufacturer. Reports must be submitted according to order terms.





The following sample(s) was/were submitted and identified on behalf of the client as:

Sample Description : A) [Redacted]
 B) [Redacted]
 C) [Redacted]

Brand : Reflex
 Fabric Width : 1.47
 Yarn Size : 1.6
 Style No. : AF104
 Order No. : 404039929/ 404039930
 Season : SS25
 Age range : 80-140cm
 Country of Origin : China
 Country of Destination : Norway

Proposed Care Instruction :



Machine Wash At 40°C
 Gentle Cycle
 Do Not Bleach
 Tumble Dry At Low Heat
 Do Not Iron
 Do Not Dry Clean

Sample Receiving Date : Aug 09, 2024
 Testing Period : Aug 09, 2024 - Aug 16, 2024
 Test Result(s) : Unless otherwise stated the results shown in this test report refer only to the sample(s) tested, for further details, please refer to the following page(s).
 Test Performed : Selected test(s) as requested by applicant

Perfluorinated Compounds (PFCs)

Test Method: With reference to CEN/TS 15968:2010, analysis was performed by HPLC-MS or LC-MS/MS.

Test Item(s)	CAS No.	Unit(s)	RL	1	2	3
Perfluorooctanesulfonic acid (PFOS), its salts*	1763-23-1	µg/m ²	1.0	ND	ND	ND
Perfluorooctanoic acid (PFOA), its salts*	335-67-1	mg/kg	0.010	ND	ND	ND
Perfluorobutanesulfonic acid (PFBS), its salts*	375-73-5	mg/kg	1.0	ND	ND	ND
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	mg/kg	1.0	ND	ND	ND
2,3,3,3-tetrafluoro-2-(heptafluoropropoxy) propionic acid, its salts and its acyl halides (HFPO-DA)	13252-13-6 /2062-98-8 /62037-80-3 /67118-55-2	mg/kg	0.010	ND	ND	ND
Conclusion				Pass	Pass	Pass

Remark: ND = Not Detected
 RL = Reporting Limit
 * Substances refer to its salts/derivative listed in Appendix 1

Requirement:

PFOS, its salts	1 µg/m ²
PFOA, its salts	0.01 mg/kg
PFBS, its salts	1 mg/kg
PFHxS	1 mg/kg
HFPO-DA	0.10 mg/kg

Appendix 1 – List of PFCs its salts & derivatives
 Note: Salts of listed PFAS is subjected to the detection of its parent PFAS

Substances	CAS No.	Substances	CAS No.
PFOA, its salts & derivatives			
Perfluorooctanoic Acid (PFOA)	335-67-1	Silver perfluorooctanoate (PFOA-Ag)	335-93-3
Sodium perfluorooctanoate (PFOA-Na)	335-95-5	Perfluorooctanoyl fluoride (PFOA-F)	335-66-0
Potassium perfluorooctanoate (PFOA-K)	2395-00-8	Ammonium perfluorooctanoate (APFO)	3825-26-1
Lithium perfluorooctanoate (PFOA-Li)	17125-58-5		
PFOS, its salts & derivatives			
Perfluorooctanesulfonic Acid (PFOS)	1763-23-1	Perfluorooctanesulfonic acid, tetraethylammonium salt (PFOS-N(C ₂ H ₅) ₄) / PFOS-TEA	56773-42-3
Potassium perfluorooctane sulfonate (PFOS-K)	2795-39-3	Didecyl dimethyl ammonium perfluorooctane sulfonate (PFOS-N(C ₁₀ H ₂₁) ₂ (CH ₃) ₂)	251099-16-8
Sodium perfluorooctane sulfonate (PFOS-Na)	4021-47-0	Magnesium bis(heptadecafluorooctanesulphonate) (PFOS-Mg)	91036-71-4



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Lithium perfluorooctane sulfonate (PFOS-Li)	29457-72-5	Perfluoro-1-octanesulfonyl fluoride (PFOS-F)	307-35-7
Ammonium perfluorooctane sulfonate (PFOS-NH ₄)	29081-56-9	Piperidine 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluorooctanesulfonate	71463-74-6
Perfluorooctane diethanolamine salt (PFOS-NH ₂ (C ₂ H ₄ OH) ₂)	70225-14-8		
PFBS, its salts & derivatives			
Perfluorobutanesulfonic Acid (PFBS)	375-73-5	Tetrabutyl-phosphonium perfluorobutanesulfonate	220689-12-3
Potassium perfluorobutanesulfonate (PFBS-K)	29420-49-3		

Remark: The test was subcontracted to SGS Guangzhou chemical lab.

Sample Photo



(A)

(B)



(C)

The statement of conformity in this test report is only based on measured values by the laboratory and does not take their uncertainties into consideration.

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Consequences of our PFAS policy?

- Increased material cost
- Fabric & treatment qualities available in market are not within our PFAS scope. Same applies 2nd tier suppliers etc.
- More difficult to reach best quality in regard to functionality (in comparison with other brands/product in market).
- From our survey we found 1/3 of our suppliers find our chemical requirements “very challenging”, even though >90% have nominated person for this topic.
- It is difficult to find suppliers with good knowledge about PFAS topic



Summary to bring back home

- Legislations should be more strict and set into effect much quicker.
- Frequent product testing by Environmental/Chemical Agencies have a positive impact It is much needed in today`s market. There are too many brands in the market claiming to have certain qualities/certificates – but in reality they don`t!
- Seek knowledge and advice from external sources.
- Take a stand - Which values do you want to build?
- Take one step at the time



Thank you for having us